PRODUCT & SERVICES GUIDELINE

Introduction:

FSS Technologies Sdn. Bhd. is incorporated in Malaysia and is lead by a team of experienced engineers with high qualification in the area of electrical/electronics and computer engineering. Our firm is bumiputera company and registered with the Malaysian Ministry of Finance.

Besides trading of electrical/electronics related equipments, we also design and manufacture various electronics training systems and test equipments to meet the both the local and overseas market demands. Another diversity of our business is that we provide technical courses, seminars or workshops based on electronics engineering syllabus which suits the requirements by the local institutions.

We are a distributor/reseller representing overseas company to market and provide technical training and support for products such as FPGA/CPLD trainers, microprocessor/microcontroller embedded systems, telecommunication training systems, test measuring equipments, development tools hardware and software and etc.

Microprocessor Trainers

Microcontroller Trainers

Telecommunication Trainers

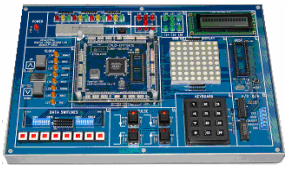
Device Programmers

Electronics Trainers

Robotic Kits

Development Tools

Test & Measuring Instruments



CPLD/FPGA Trainers

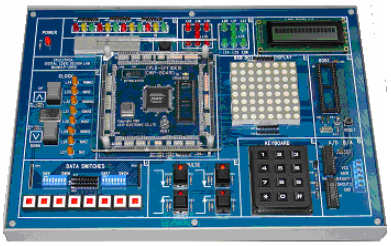
Embedded System Design

Technical Training

Service & Maintenance

FSS TECHNOLOGIES SDN BHD
86, JALAN PUJ 5/6, TAMAN PUNCAK JALIL, BANDAR PUTRA PERMAI,
43300 SERI KEMBANGAN, SELANGOR
TEL:+603-89428962 FAX:+603-89412962

PLD/CPLD/FPGA TRAINING SYSTEMS



CPLD/FPGA Training System
(Altera or Xilinx)
Model: LEAP LP-2900

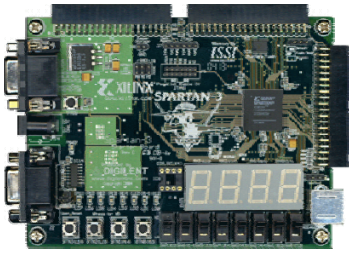
FEATURES:

A complete teaching tool to teach & study FPGA/CPLD technologies. The main base unit is flexible to accept Altera or XILINX CPLD/FPGAs modules of different series. Use Graphic, Verilog and VHDL to develop circuits. This unit includes a variety of application modules for wide interfacing. Bundled with its comprehensive hardware, experiment modules, development software and documentation, it provides all the solution to the instructor and student to excel in CPLDS and FPGAs introduction, programming and interfacing.

ALTERA FPGA Training Board
Model: DE2 / DE2-70

FEATURES:

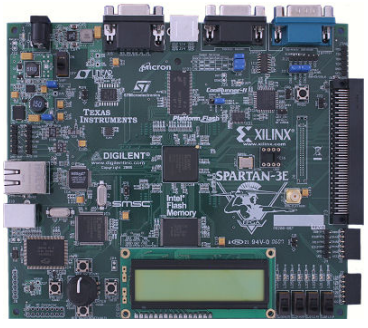
- Altera Cyclone II 2C35 FPGA with 35000 LEs
- Altera Serial Configuration deivices (EPCS16) for Cyclone II 2C35
- USB Blaster built in on board for programming and user API controlling
- JTAG Mode and AS Mode are supported
- 8Mbyte (1M x 4 x 16) SDRAM, 512K byte(256K X16) SRAM
- 4Mbyte Flash Memory (upgradeable to 4Mbyte)
- SD Card Socket
- 4 Push-button switches, 18 DPDT switches, 9 Green User LEDs, 18 Red User LEDs
- 16 x 2 LCD Module
- 50MHz Oscillator and 27MHz Oscillator for external clock sources
- 24-bit CD-Quality Audio CODEC with line-in, line-out, and microphone-in jacks
- VGA DAC (10-bit high-speed triple DACs) with VGA out connector
- TV Decoder (NTSC/PAL) and TV in connector
- 10/100 Ethernet Controller with socket.
- USB Host/Slave Controller with USB type A and type B connectors.
- RS-232 Transceiver and 9-pin connector
- PS/2 mouse/keyboard connector
- IrDA transceiver
- Two 40-pin Expansion Headers with diode protection
- Optional Add-On Interface: 4.3" LCD Touch Panel Dev. Kit
  5.0Mega Pixel Digital Camera Module



Spartan-3 Starter Board

FEATURES:

- Xilinx Spartan-3 FPGA, 200K or 1000K gates)
- Xilinx Spartan-3 FPGA w/ twelve 18-bit multipliers, 216Kbits of block RAM, and up to 500MHz internal clock speeds
- On-board 2Mbit Platform Flash (XCF02S)
- 8 slide switches, 4 pushbuttons, 9 LEDs, and 4-digit seven-segment display
- Serial port, VGA port, and PS/2 mouse/keyboard port
- Three 40-pin expansion connectors
- Three high-current voltage regulators (3.3V, 2.5V, and 1.2V)
- Works with Digilent's JTAG3, JTAG USB, and JTAG USB Full Speed cables, as well as P4 & MultiPRO cables from Xilinx
- 1Mbyte on-board 10ns SRAM (256Kb x 32) fully compatible with all versions of the Xilinx ISE tools, including the free WebPack.



Spartan-3E Starter Board

FEATURES:

- Xilink Spartan 3E FPGA(500K gates)
- Xilinx XCF04 Platform Flash for storing FPGA configurations
- 32MB Micron DDR SDRAM
- 16MB Numonyx StrataFlash
- 2MB ST Microelectronics Serial Flash
- Linear Technologies Power Supplies
- Texas Instruments TPS75003 Triple-Supply Power Management IC
- SMSC LAN83C185 Ethernet PHY
- JTAG programming via on-board USB2 port; JTAG & SPI Flash programming with parallel or USB JTAG Cable; numerous additional configuration options.
- 100-pin Hirose FX2 connector, 3 six pin Pmod connectors, HD VGA port, PS/2 keyboard port, 2 DB9 RS-232 connectors, RJ-45 Ethernet port, optional LCD interface, SMA connector for high-speed clock input
- Compatible with all versions of the Xilinx ISE tools including the free WebPack.

Spartan-3E 1600 Development Board

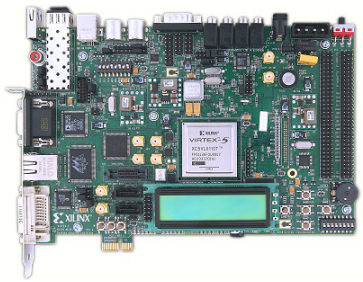
FEATURES:

- Based on the Xilinx XC3S1600E FPGA
- Xilinx XCF04 Platform Flash for storing FPGA configurations
- ST Microelectronics M25P16 16Mbit Serial Flash
- Intel TE28F128 (or JS28F128) 128Mbit StartaFlash
- Micron 256Mbit DDR SDRAM
- JTAG programming via on-board USB2 port, external parallel or USB cables. The FPGA supports numerous configuration options including on-board platform flash, SPI flash, and parallel flash. USB cable provided.
- 100-pin Hirose FX2 connector, three 6-pin Pmod connectors, DB15HD VGA port, PS/2 keyboard connector, two DB9 RS-232 connectors, RJ-45 Ethernet port, 16-pin header for optional LCD modules, SMA connector for high-speed clock input
- Compatible with all versions of the Xilinx ISE tools including the free WebPack.

Virtex II PRO Development System

FEATURES:

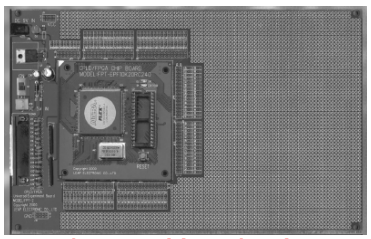
- Based on Xilinx Virtex-2 Pro XC2VP30 FPGA with 30,816 Logic Cells, 136 18-bit multipliers, 2,448Kb of block RAM, and two PowerPC CPUs
- DDR SDRAM DIMM that can accept up to 2Gbytes of RAM
- 10/100 Ethernet port, USB2 port, Compact Flash card slot, XSGA Video port, Audio Codec
- SATA, and PS/2, RS-232 ports
- High and Low Speed expansion connectors with a large collection of available expansion boards
- JTAG programming via on-board USB2 port(USB cable provided); Compact Flash via on-board System ACE
- Two 2x20 right-angle female sockets
- 100-pin Hirose FX2 connector., audio in/out, PS/2 port, RS-232 port & etc.
- Supported by Xilinx Development suite such as ISE Foundation & Embedded Developer's Kit (EDK) – version 10.1 or older



Virtex-5 OpenSPARC Evaluation Platform

FEATURES:

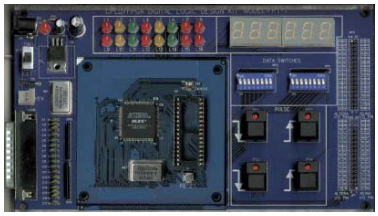
- The Virtex-5 OpenSPARC Evaluation Platform is a powerful system for hosting the OpenSparc T1 open-source microprocessor.
- Based on the Xilinx XUPV5-LX110T, a versatile general purpose development board powered by the Virtex®-5 FPGA, this kit brings the throughput of OpenSPARC Chip Multi-Threading to an FPGA.
- 2 x USB ports, PS/2 ports(Keyboard, Mouse), RJ-45 Networking Ports, RS-232 port, Audio In (Line, Microphone), Audio Out (Line, Amp, SPDIF)
- Video Input, Video (DVI/VGA) Output,Single-Ended and Differential I/O Expansion
- JTAG Programming Interface
- Two Xilinx XCF32P Platform Flash PROMs (32 Mbyte each) for storing large device configurations
- Xilinx SystemACE Compact Flash configuration controller
- 64-bit wide 256Mbyte DDR2 small outline DIMM (SODIMM) module compatible with EDK supported IP and software drivers
- On-board 32-bit ZBT synchronous SRAM and Intel P30 StrataFlash
- 10/100/1000 tri-speed Ethernet PHY supporting MII, GMII, RGMII, and SGMII interfaces
- System shipped with 1GB Compact Flash card, 256 MB SODIMM module, SATA cable, USB-JTAG Programming Cable, DVI to VGA adapter, 6A power supply



CPLD/FPGA Chipset/Project Board
Model: LEAP FPT-2

FEATURES:

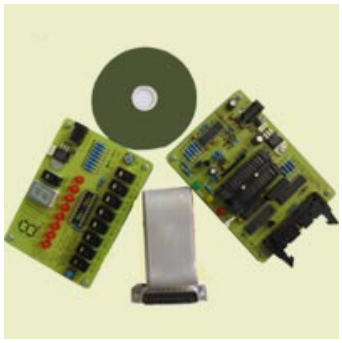
CPLD/FPGA carrier boards. Suitable for projects & development application usage.
Board Options:
(1) ALTERA EPF10K10TC144(TQFP144 pins)
FPT- EPF10K10TC144
(2) ALTERA EPF10K20RC240(PQFP240 pins)
FPT-EPE10K20RC240
(3) XILINX XCS10TQ144(TQFP144 pins)
FPT-XCS10TQ144
(4) XILINX XCS20PQ208(PQFP208 pins)
FPT-XCS20PQ208



CPLD/FPGA Logic Design Kit
Model: LEAP FPT-1

FEATURES:

- A low cost & reliable training & development kit that features the renowned ALTERA and XILINX's CPLD/FPGA platform for user to study & develop application programs. Use CPLD/FPGA software and hardware to learn new logical IC design.
- Use Graphical entry, Verilog HDL and VHDL to develop circuits. Use Print Port Download directly under original manufacturer development system.
- Programmed finished file to EPROM (FLASH) and operated it independently.
- On board application I/O like LEDs, switches, 7-segment LEDs & etc.



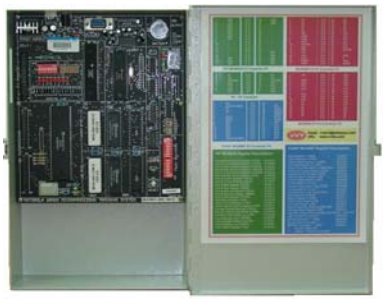
PLD Starter Kit
Model: PLD – SK01

FEATURES:

A complete training system for Logic as well as an introduction to Programmable Logic Devices (PLD). This unique starter kit allows users to learn the principles, try out their code and program devices.

- Software Development Environment using Atmel CUPL
- Programmer with ZIF socket
- Evaluation, training board
- PLD Device Support : Atmel ATF16V8B, AT16V8BQL, ATF16V8C
- Atmel ATF20V8B, Atmel ATF22V10C

MICROPROCESSOR TRAINING SYSTEMS



68000 Microprocessor Trainer
ABLELOGIC Model: uP-68K

FEATURES:

- CPU: Motorola MC68000 (16-bit Microprocessor); Memory: 64KB SRAM, 64KB ROM
- Support PC-based programming (Assembly, C-Language-optional)
- Interactive 'hierarchal' debugger interface utility supports program execution, single stepping, memory read/write/modify, data converter
- Downloading of program (Motorola S-Record) file from host computer to target board via RS232 interface
- Supports Faults Simulation (16 Faults)
- Built-in Diagnostic Test Function(I/O test & serial I/O test)
- Built-in IC Tester Utility & EPROM Programmer in firmware
- Peripheral IC: 68230 PI/T and 68681 DUART devices
- Built-in 8-Bit simulated digital input switches and 8-Bit output LEDs
- Expansion capability via built-in extension connectors
- CPU data, address & control bus accessible via extension pin connector
- Built-in Intelligent Logic Probe
- Memory backup function
- Sturdy, robust & portable metal case form factor with protective cover

Experiment/Application Board For
***ABLELOGIC* Microprocessors Trainers**
ABLELOGIC Model: EXP-AP

FEATURES:

- The **EXP-AP** experiment board has been designed to aid the teaching of microprocessor and microcontroller interfacing from simple switch and lamp input/output through to more complex closed-loop and open-loop control systems.
- Various application modules on board allow students to easily understand each experiment section as it is worked upon.
- The wide array of features incorporated into the board include digital switches, output LEDs, traffic light module, heater, light, optical position/speed sensors, 7-Segment LEDs, heater, DC & Stepper motors, bar-graph, potentiometer, speaker, ADC, DAC, LCD, keypad, dot-matrix & etc.
- Fully compatible with most ABLELOGIC range of microprocessor and microcontroller trainers such as uP-68K, uC-68HC11, uC-8051, PIC-DK08.

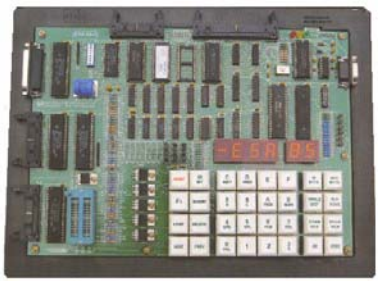
Intel 8088 Microprocessor Training System
Model: BGC8088 Microengineer V3.5

FEATURES:

A complete education microprocessor training system based on the popular Intel 8088 microprocessor. An user friendly standalone system with unsurpassed features. Programs commands can be keyed in directly using the keyboard or downloaded into the target board using a host computer.

The architecture and standard addressing modes makes it a straight forward and easy to teach and study. It is also a suitable target system to develop & run interface application controlled programs, developed based on this microprocessor.

Comes with a wide choice of selectable experiment modules to suit most common microprocessor interfacing application.



Advanced 8085 Microprocessor Trainer
Model: 85-2

FEATURES:

-Based on the popular Intel 8085 8-bit CPU
-Operating modes: Standalone or PC-interface (via RS232 interface)
-On board keypad for direct machine instruction entries
-Built-in powerful monitor with line assembler, disassembler, program upload/download, single step and other debugging functions
-Windows based GUI for PC-Link control interface
-Onboard RAM, monitor EPROM and memory expansion socket
-On board peripheral ICs such as 8255(providing 48 I/O lines), 8279 keyboard/display controller, 8253 PIT, 8251 UART, 8259 PIC
-Built-in parallel interface port (DB25) and serial port (DB9)
-On board I/O connectors & bus expansion connectors
-Able to interface with a wide range of experiment interface modules

8088/8086 Microprocessor Trainer
Model: 86/88-2

FEATURES:

-Based on the Intel 8088 and 8086 CPU architecture
-Supports both 8088 and 8086 CPU (8086 is installed as standard)
-Able to support NDP 8087
-Operating modes: Standalone or PC-interface (via RS232 interface)
-On board keypad for direct machine instruction entries
-Built-in powerful monitor with line assembler, disassembler, program upload/download, single step and other debugging functions
-Windows based GUI for PC-Link control interface
-Onboard RAM, monitor EPROM and memory expansion socket
-On board peripheral ICs such as 8255(providing 48 I/O lines), 8279 keyboard/display controller, 8253 PIT, 8251 UART, 8259 PIC, 8284 clock generator, 8288 bus controller
-Built-in parallel interface port (DB25) and serial port (DB9)
-On board I/O connectors & bus expansion connectors
-Able to interface with a wide range of experiment interface modules

Advanced 8088/8086 Microprocessor Trainer
Model: 86/88-3

FEATURES:

-Based on the Intel 8088 and 8086 CPU architecture
-Supports both 8088 and 8086 CPU (8086 is installed as standard)
-Able to support NDP 8087
-PC-interface (via RS232 interface)
-Built-in powerful monitor with line assembler, disassembler, program upload /download, single step and other debugging functions
-Windows based GUI for PC-Link control interface
-Onboard RAM, monitor EPROM and memory expansion socket
-On board peripheral ICs such as 8255(providing 48 I/O lines), 8279 keyboard/display controller, 8253 PIT, 8251 UART, 8259 PIC, 8284 clock generator, 8288 bus controller
-Built-in serial port (DB9)
- On-board 8-bit DAC and 12-bit DAC
-On board I/O connectors & bus expansion connectors
-Able to interface with a wide range of experiment interface modules

Experiment Interface Modules For 85-2, 86/88-2, 86/88-3 Microprocessor Trainers

FEATURES:

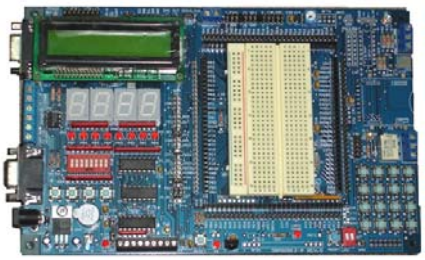
- Wide choice of experiment interface modules for application interface and programming.
- Sample programs are provided
- Example of interface modules available: Logic Controller, LCD, Keyboard & Display, ADC, DAC, Temperature Sensor, Elevator, Keyboard, Tone Generator, RTC, Traffic Lights, Stepper Motor, DC Motor, Relay & etc.

MICROCONTROLLER TRAINING SYSTEMS

68HC11 Microcontroller Trainer
ABLELOGIC Model: uC-68HC11

FEATURES:

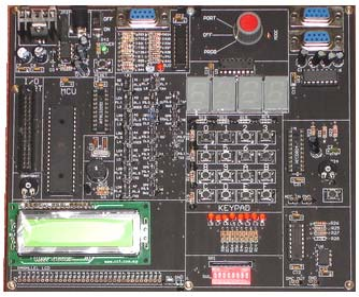
- RS232C Serial Interface to a host computer
- Support PC-based programming (Assembly, C Language-Optional)
- Powerful Debugger utility
- Supports Faults Simulation
- Built-in Parallel interface chip on board for external interfacing
- Built-in Intelligent TTL Logic Probe
- Complete system with operating manual, power supply unit, serial cable, assembler
- Simulated Digital Input: 8-Bit DIP Switches, Configurable
- Simulated Digital Output:8-Bit LEDs, Configurable
- Battery backup function for RAM
- LCD & Keypad interface



68HC12 Microcontroller Training & Dev. Kit
Model: DRAGON12-P

FEATURES:

- Freescale 68HC12 (MC9S912DP256) microcontroller
- 12KB SRAM, 4KB EEPROM, 256KB Flash
- CAN Controller
- 8 Channel A/D, 1 Channel D/A, 2 x 16 LCD Display
- 4x4 Keypad, 4 DGTs Seven Segment LEDs
- 8-Bit Digital Input Switches, 8-Bit Digital Output LEDs
- 4 Push Button Switches, IR Transceiver, Light Sensor
- Temperature Sensor
- Serial Port interface
- Logic Probe
- Expansion bus connector
- Windows based IDE development software included

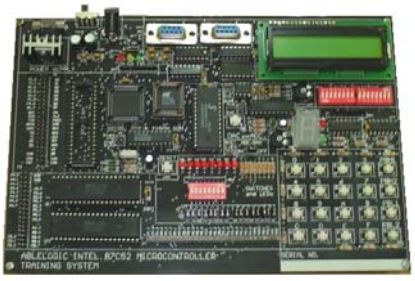


8051 Training & Dev. Kit
ABLELOGIC Model: AT89S5x DK-10

FEATURES:

A low cost, easy to use and flexible development tool and training kit used for teaching, learning and building projects based on the latest 8051 microcontroller device families such as the 89S51/52/8253/2051. Suitable for microcontroller interfacing and design application.

A self contained system, equipped with the built-in microcontroller in-circuit serial programmer/writer, application module, Windows-based software, user guide, lab experiment manual & other development tool to get user's projects started without haste. The system comes with a standard AT89S52 microcontroller from ATMEL but it can accept other microcontroller such as the AT89S52, AT89S8253 and AT89S2051.



8051 Microcontroller Dev. & Training Kit
ABLELOGIC Model: uC-8051

FEATURES:

A reliable and user friendly training system based on the popular Intel 8051 series microcontroller. It is used as a training tool to teach basic introductory level up to the advanced application level of microcontroller technology.

- MCU: 87C52
- RS232C Serial Interface to a host computer
- Support PC-based programming
- Interactive Debugger utility supports program download, program running, single stepping & etc.
- Downloading of program (Intel Hex) file from host computer to target board via serial interface
- Supports Faults Simulation
- Expansion capability via built-in extension connectors
- CPU data, address & control bus accessible via extension pin connector
- Parallel Digital I/O interface with 48 I/O lines on board
- Built-in Intelligent TTL Logic Probe
- Sturdy, robust & portable metal case form factor with protective cover
- Simulated Digital Input: 8-Bit DIP Switches; Configurable
- Simulated Digital Output:8-Bit Output LEDs; Configurable
- Battery backup function for RAM
- ADC on board
- Signal amplifier module on board

FEATURES:
A low cost, easy to use and flexible development tool and training kit used for teaching, learning and building projects based on ATMEL's AVR microcontroller device.
Equipped with the AVR USB ISP microcontroller programmer/writer, built-in application interface modules, user guide, lab experiment manual, sample programs & other development tool to get user's projects started without haste.
The system includes a standard ATMega32L AVR microcontroller as a device sample.
Board can support others MCU such as ATMega 16/32/32L/8535L, ATtiny 2313 & etc.
On board application interface like output LEDs, input switches, buzzer, matrix keypad, serial port, LCD & etc.

AVR Microcontroller Dev. & Training Kit
ABLELOGIC Model: AVR-DK20A

FEATURES:
Easy to use and flexible development tool and training kit used for teaching, learning and building projects based on the renowned Microchip PIC Microcontroller device families. Suitable for PIC microcontroller interfacing and design application. A self contained system, equipped with the portable & durable USB PIC microcontroller programmer/writer, PIC microcontroller target/interface module, on-board experiment/application modules, development software, user guide, lab experiment manual to get user's projects started without haste.
Various on board device sockets at the main target board that supports most Microchip PIC devices, up to 40 pin devices.

PIC Microcontroller Training & Dev. Kit (USB)
ABLELOGIC Model: PIC-DK09A

FEATURES:
An advanced training system based on the renowned Microchip PIC microcontrollers. This system comes with a complete set of experiment interface modules that covers a wide range of interfacing applications. Suitable to be used as a teaching and learning system to teach basic microcontroller's fundamental up to advance microcontroller programming and control.
Programming can be done in assembly, C or PIC-Basic.
This system is bundled with extensive manuals with experiment lab manuals, sample programs and development software to get their courses started with ease. Experiment modules included such as basic I/Os, temperature sensor, humidity sensor, DC motor, stepper motor, real time clock, relays, rotary encoder, 7-segment LEDs, LCDs, buzzer, IR, matrix keypad & etc.
Includes USB PIC Programmer and optional ICD(In Circuit Debugger).

Advance PIC Microcontroller Training & Dev. Kit
ABLELOGIC Model: PIC-ATS800

FEATURES:
A self contained system, equipped with the portable & durable PIC microcontroller programmer/writer, PIC microcontroller target/interface module, application board, Microchip MP-LAB IDE software, user guide, lab experiment manual to get user's projects started without haste.
Various on board device sockets at the main target board that supports most Microchip PIC devices, up to 40 pin devices.

- Built-in PIC Programmer
- LCD Display 16x2
- 4 x 4 Matrix Keyboard
- Buzzer
- On-board regulator
- 8 Input Data Switches
- 8 Output LEDs
- Input/Output Interface DHI Connectors
- DIL sockets to accommodate 8/18/28/40 pin PIC microcontroller devices
- Servo Motor Interface

PIC Training/Development Kit
Model: ABLELOGIC PIC-DK08

Experiment/Application Board For *ABLELOGIC* Microcontrollers Trainers
ABLELOGIC Model: EXP-AP

FEATURES:

- The **EXP-AP** experiment board has been designed to aid the teaching of microprocessor and microcontroller interfacing from simple switch and lamp input/output through to more complex closed-loop and open-loop control systems.
- Various application modules on board allow students to easily understand each experiment section as it is worked upon.
- The wide array of features incorporated into the board include digital switches, output LEDs, traffic light module, heater, light, optical position/speed sensors, 7-Segment LEDs, heater, DC & Stepper motors, bar-graph, potentiometer, speaker, ADC, DAC, LCD, keypad, dot-matrix & etc.
- Fully compatible with most ABLELOGIC range of microprocessor and microcontroller trainers such as uP-68K, uC-68HC11, uC-8051, PIC-DK08

8051 Microcontroller Trainer(Standalone)
Model: BGC8052 Microengineer

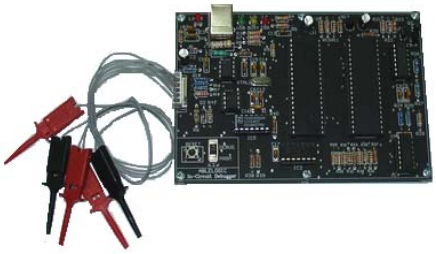
FEATURES:

- CPU: Intel 8032; Oscillator: 11MHz
- RAM: 32K Byte SRAM; ROM: 32K Byte EPROM (Firmware)
- I/O Range: 7F00 – 7FFF
- 56-Keys Keyboard with ASCII Symbols
- 40x 2 LCD
- Centronics Printer Interface & RS232C Interface On-Board
- Expansion Interface for: Data Bus, Port 1 & 3, Vcc, GND, Decoded I/O Address, Control Signals
- Status LED Indicator On-Board
- Built-in Speaker
- On board monitor that supports 8051/52 Assembler/Disassembler, Internal Memory View & Edit, Program Memory Display, Edit, Fill, Move, SFR register contents Display & Rewrite, Single Stepping, Breakpoint Setting, User Program Run & etc.
- Able to interface to a wide range of experiment modules

Low Cost USB Microchip PIC Programmer
ABLELOGIC Model: PIC-PRG2

FEATURES:

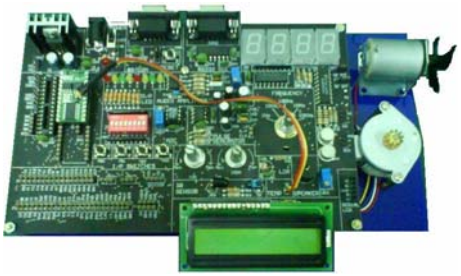
- This programmer for Microchip PICmicro controllers can be connected to a PC's or Laptop's USB port.
- A low cost, portable and powerful USB based programmer used to program the renowed Microchip PIC series of microcontrollers.
- It can programmed devices up to 40 pins DIL packages as well as 24Cxx EEPROMs.
- Bundled with the Windows based GUI programmer interface, the PIC-PRG2 is indeed what you need to get your microcontroller projects started without haste.
- Note: Please refer to catalogue for device support list.



USB Microchip PIC In-Circuit Debugger & Programmer
ABLELOGIC Model: PIC-ICD2

FEATURES:

- A low cost, reliable & portable development tool for the development of Microchip PIC microcontroller.
- Fully compatible with MPLAB software and works with desktop or notebook via USB port.
- Using PIC-ICD2, user is able to download their program, debug, single step in real time mode, view variables, breakpoints to check and verify their source codes.
- This unit can also program PIC devices via the ICSP(In Circuit Serial Programming) interface.
- Support most Microchip devices. (Note: Please refer to catalogue for device support list.)

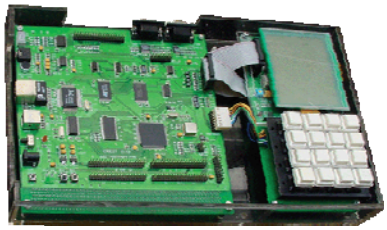


BASIC STAMP Dev. & Training Kit
ABLELOGIC Model: BSTAMP-DK1

FEATURES:

A robust, user -friendly and self contained microcontroller development & training system based on the popular Basic Stamp microcontroller device families. It is used as a tool to teach the fundamental of microcontroller's concept, theory, and its application.

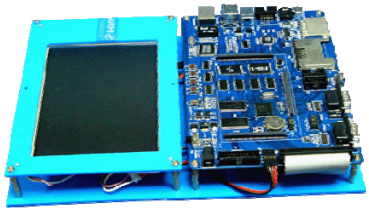
- On board programming socket for 14/24/28/40 pin microcontroller devices
- On board application interface includes 8-Bit Buffered Output LEDs, 8-Bit Digital Input Switches, LDR, Quad 7 Segment LEDs with Decoder, LCD, Potentiometers, Buzzer, Servo Motor, DC Motor, Stepper Motor, Temperature sensor, pulse generator, push buttons & etc.



ARM7 S3CEV40 Training & Development Board

FEATURES:

- Samsung S3C44B0 processor, ARM7TDMI core, 66MHz work frequency
- 5.0V DC or USB power supply
- 2 M bytes 16-bit Flash, 8 M bytes 16-bit SDRAM, 4K bit EEPROM with IIC BUS
- 2x RS232, 1 x USB connecter, 10M Ethernet interface connector
- Microphone import, IIS audio frequency export (speaker out)
- 16 M Bytes Nand Flash
- External IDE port
- LCD&TSP touch screen port
- 320×240 LCD * (optional), 4×4 keyboard * (optional)
- Reset button, 2 interrupt buttons and 2 LEDS
- 8 segment LEDs
- 20-pin JTAG interface connector



ARM9 S3CEB2410 Training & Development

FEATURES:

- Processor: S3C2410x ARM920T(272FBGA)
- System clock: 12MHz external crystal oscillator, 200MHz+ CPU internal FD
- Intel Strata Flash : E28F128J3A 16Mbytes
- ATMEL 2Mbytes NOR FLASH AT49BV1614A
- Samsung Nand Flash 32M Bytes (Smart Media Card)
- SDRAM: 64Mbytes (32Mbytes×2)
- RTC (real time clock), 3 channel UART (including IrDA interface)
- 2-channel USB HOST and 1-channel USB DEVICE
- Smart Media Card interface, SD host (MMC) interface, TFT/STN LCD and touch panel interface
- IIC bus EEPROM, IIS interface (sound codec audio input/output), SPI interface
- 8-channel 10bit ADC modular transfer interface, 10M Ethernet interface
- 4 touch buttons for external interrupt or I/O input
- 4 LED indicators and 2 power indicators
- 20-pin JTAG interface
- 640*480 TFT Color LCD and Touch panel (Option)

PHILIPS LPC2103 ARM7 DEVELOPMENT BOARD

PHILIPS LPC2106 ARM7 DEVELOPMENT BOARD

PHILIPS LPC2106 ARM7 TRAINING & DEV. BOARD

PHILIPS LPC2124 ARM7 DEVELOPMENT BOARD

PHILIPS LPC2129 ARM7 DEVELOPMENT BOARD

PHILIPS LPC2138 ARM7 DEVELOPMENT BOARD

PHILIPS LPC2148 ARM7 DEVELOPMENT BOARD

PHILIPS LPC2378 ARM7 DEVELOPMENT BOARD

ATMEL SAM9-L9260 ARM9 DEVELOPMENT BOARD

PLC TRAINING SYSTEMS

Assorted PLC Trainers based on OMRON, PANASONIC, SIEMENS & etc.

OMRON CPM1A PLC TRAINER SERIES
Model: PLC-CPM1A-xx

FEATURES:

- Built in simulation switches and output indicators
- Central Processing Unit: Omron CPM1A series (20 I/Os, 30 I/Os, etc.)
- CPU Power, Run, Error, Communication indicators
- Built in 24VDC Power Supply
- RS232C Communication/Programming Interface Port
- Input Simulation: Toggle switches
- Output Simulation: Lamps, Buzzer
- I/O Mode Selector : Mixed or External
- Supports Windows based ladder diagram software

Optional: Handheld Programming Console (Optional)

OMRON CPM2A PLC TRAINER SERIES
Model: PLC-CPM2A-xx

FEATURES:

- Built in simulation switches and output indicators
- Central Processing Unit: Omron CPM2A series (20 I/Os, 30 I/Os, 40 I/Os, etc.)
- CPU Power, Run, Error, Communication indicators
- Built in 24VDC Power Supply
- RS232C Communication/Programming Interface Port
- Input Simulation: Toggle switches
- Output Simulation: Lamps, Buzzer
- I/O Mode Selector : Mixed or External
- Supports Windows based ladder diagram software

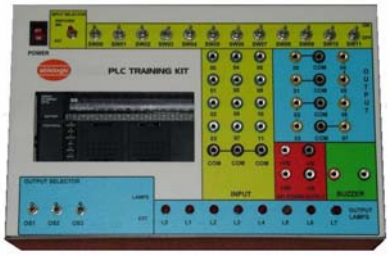
Optional: Handheld Programming Console (Optional)

OMRON CQM1H PLC TRAINER SERIES
Model: PLC-CQM1H-xx

FEATURES:

- Built in simulation switches and output indicators
- Central Processing Unit: Omron CQM1H series(32 I/Os, etc.)
- Cascaded input and output card modules
- Power supply unit included
- CPU status indicators
- Built in 24VDC Power Supply
- RS232C Communication/Programming Interface Port
- Input Simulation: Toggle switches
- Output Simulation: Lamps, Buzzer
- I/O Mode Selector : Mixed or External
- Supports Windows based ladder diagram software

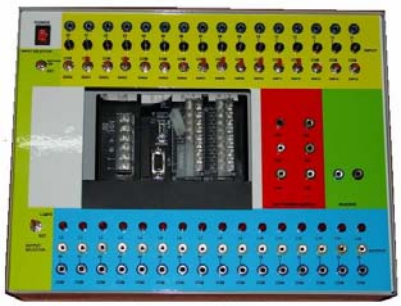
Optional: Handheld Programming Console (Optional)



OMRON CP1L/CP1H PLC TRAINER SERIES
Model: PLC-CP1L-xx or PLC-CP1H-xx

FEATURES:

- Built in simulation switches and output indicators
- Central Processing Unit: Omron CP1L series (14 I/Os, 20 I/Os, 30 I/Os, 40 I/Os, etc.) or Omron CP1H series
- CPU status indicators
- Built in 24VDC Power Supply
- USB Programming Interface Port; Optional serial interface port
- Input Simulation: Toggle switches; Output Simulation: Lamps, Buzzer
- I/O Mode Selector : Mixed or External
- Supports LD Function block programming
- Supports Windows based ladder diagram software



OMRON CJ1M PLC TRAINER SERIES
Model: PLC-CJ1M-xx

FEATURES:

- Built in simulation switches and output indicators
- Central Processing Unit: Omron CJ1M-CPUxx series(32 I/Os, etc.)
- Cascaded input and output card modules
- Power supply unit included-14W (output: 5VDC/2.8A; 24VDC/0.4A)
- CPU status indicators
- Built in 24VDC Power Supply
- RS232C Communication/Programming Interface Port, Peripheral Port
- Input Simulation: Toggle switches; Output Simulation: Lamps, Buzzer
- Built-in compact flash card memory interface
- I/O Mode Selector : Mixed or External
- Supports Windows based ladder diagram software

Optional: Handheld Programming Console (Optional)

PANASONIC (NAIS) PLC TRINER
ABLELOGIC Model: PLC-FPO-BASIC

FEATURES:

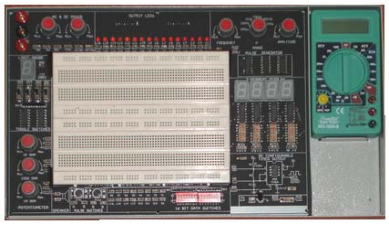
- Built in simulation switches and output indicators
- Central Processing Unit: Panasonic(NAIS) FPO series
- CPU status indicators
- Built in 24VDC Power Supply
- RS232C Communication/Programming Interface Port
- Input Simulation: Toggle switches
- Output Simulation: Lamps, Buzzer
- I/O Mode Selector : Mixed or External
- Supports Windows based ladder diagram software

PLC EXPERIMENT & INTERFACE TRAINER
ABLELOGIC Model: PLC-EXP-01

FEATURES:

- \Input switches: 4 pushbutton and 4 toggle switches
- 4 output neon lamps
- Inductive proximity sensor (x1)
- Capacitive proximity sensor (x1)
- Photo sensor (x1)
- Dual 7-Segment LED (with decoder drivers)
- Traffic Light Module with Pedestrian Crossing
- Output Speaker (x1)
- DC Motor (x1)
- Connection via built in 4mm connector interface
- Built-in power protection
- Comes with operation manual and lab student workbook (with experiment samples and tutorials)

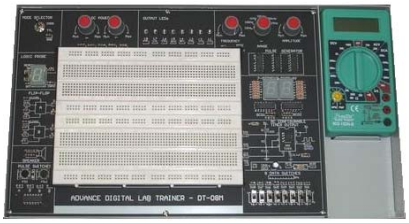
DIGITAL ELECTRONICS TRAINING SYSTEMS



ADVANCE DIGITAL LAB TRAINER (16-Bit)
ABLELOGIC Model: DT-16

FEATURES:

- Built-in AC/DC power supplies
- Robust mono-board design
- 16-Bit Logic Input Switches, 16-Bit Logic Output LEDs
- Pulse generator, User configurable RC Timer
- Large removable solderless prototyping board
- Intelligent logic probe
- Pulse switches & speaker interface
- Quad 7-Segment LED interface with BCD drivers
- Digital voltmeter
- Includes operational manual, lab experiment workbook, datasheet



TTL/CMOS DIGITAL LAB TRAINER (8-BIT)
ABLELOGIC Model: DT-08M

FEATURES:

- TTL/CMOS selector
- Built-in DC power supplies
- Robust mono-board design
- 8-Bit Logic Input Switches, 8-Bit Logic Output LEDs
- Pulse generator, User configurable RC Timer
- Large removable solderless prototyping board
- Intelligent logic probe, Pulse switches
- Flip-flop circuit interface & speaker interface
- Dual 7-Segment LED interface with BCD drivers, Digital voltmeter
- Include operational manual, lab experiment workbook, datasheet

ADVANCED DIGITAL LAB TRAINER (8-BIT)
ABLELOGIC Model: DT-09M

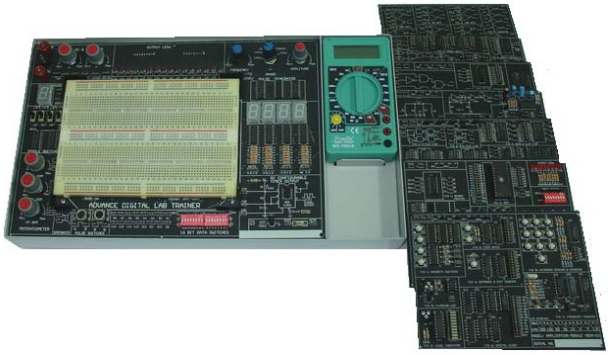
FEATURES:

- Built-in DC power supplies
- Robust mono-board design
- 8-Bit Logic Input Switches, 8-Bit Logic Output LEDs
- Waveform/Function generator, User configurable RC Timer
- Large removable solderless prototyping board
- Intelligent logic probe, Pulse switches
- Speaker interface, Function switches
- Flip-flop circuit interface
- Dual 7-Segment LED interface with BCD drivers
- Digital voltmeter
- Include operational manual, lab experiment workbook, datasheet

ADVANCE DIGITAL ANALOGUE TRAINER
ABLELOGIC Model: DAT-200X

FEATURES:

- AC/DC power supplies
- Robust mono-board design
- Waveform/Function Generator
- 8-Bit Input Switches & 8-Bit Output LEDs
- Pulse switches
- Removable Large Prototyping Board
- Intelligent Logic Probe, User configurable RC Timer
- Dual 7-Segment LED interface with BCD drivers
- Digital voltmeter, ammeter, ohm-meter, continuity tester
- Potentiometers, switches, BNC connectors, speaker & etc.
- Bundle with user manual, lab experiment manual & datasheet



DIGITAL ELECTRONICS LAB TRAINING SYSTEM
(With EXP Modules)
ABLELOGIC Model: DTS-300B

***FEATURES*:**

The **DTS-300B** is a robust, user -friendly and self contained digital training system that teaches the basic fundamental theory of digital electronics, concept, theory, construction of digital electronics circuits and its application. This system is widely used in conducting practical digital electronics courses. This system is suitable and ideal for basic up to advance studies of digital electronics.

The main base unit is equipped with various I/O devices on the main system board to facilitate construction of circuit with ease. The system also comes with a comprehensive set of modular experiment board modules that covers most digital logic circuit theory practices and application.

ANALOG ELECTRONICS TRAINING SYSTEMS

ANALOGUE LAB TRAINER
ABLELOGIC Model: ALT - 880

FEATURES:

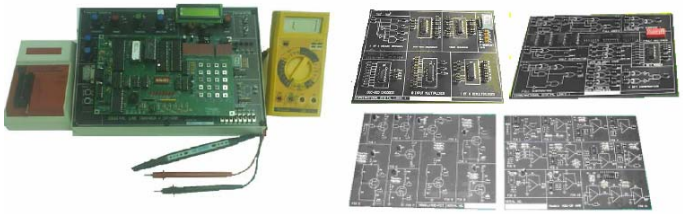
- AC/DC power supplies
- Robust mono-board design
- Waveform/Function Generator, Removable Large Prototyping Board
- Digital voltmeter, ammeter, ohm-meter, Continuity Tester
- Analogue voltmeter, analogue ammeter
- Rotary switch, toggle switch, slide switch
- Potentiometers, BNC connectors etc.
- Resistor component library
- Overload protection
- User guide, lab experiment manual, datasheet

BASIC ELECTRONICS/ELECTRICITY TRAINER
ABLELOGIC Model: BETS-900A

FEATURES:

The **BETS-900A** is a robust, user -friendly and self contained electronics training system that teaches the basic fundamental theory of electricity/electronics, concept, theory, construction of basic electricity/electronics circuits and its application.

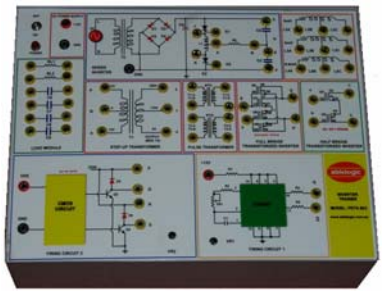
The main base unit is equipped with various I/O devices on the main system board to facilitate construction of circuit with ease. The system also comes with a comprehensive set of modular experiment board modules that covers most electronics circuit theory practices and application.



ELECTRONICS FAULT FINDING & TROUBLESHOOTING TRAINER
ABLELOGIC Model: EFT-900

FEATURES:

A self contained & user friendly training system used to demonstrate the theory and practical aspect of electronics' fault finding and troubleshooting. Through the guided experiments & theoretical explanation, users are able to grasp the basic idea in locating and diagnosing fault, and finally troubleshooting a digital system. The **EFT-900** focus users to experience fault finding and troubleshooting by instructing and guiding them to conduct practical hands-on experiments that range from diagnosing a basic electronics system (analogue & digital), up to an advance microcontroller based control system.



POWER ELECTRONICS TRAINER SERIES
ABLELOGIC Model: PETK-800 SERIES

FEATURES:

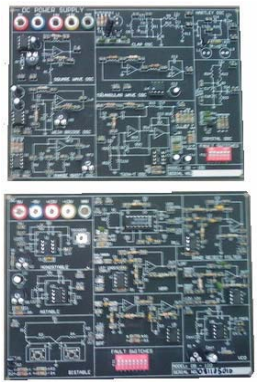
- A series of trainers use to construct and demonstrate power electronics circuits using SCRs or Transistors
- The system is user-friendly and comes with a printed mimic circuit diagram for users' visualization & fast understanding.
- Built-in safety connector sockets to ensure efficient and accurate circuit wiring and also safety precaution.
- Includes a set of technical lab experiment workbook that covers various power electronics circuits fundamental & operations.

BASIC ELECTRONICS TRAINING SYSTEM
ABLELOGIC Model: BETS-800

FEATURES:

Example experiment covers by this training system are as follows:

- Introduction to electricity and electronics, current and voltage
- Resistance, Capacitance, Inductance
- Current, voltage and resistance measurement
- DC Circuits, Ohm's Law, Norton's and Thevenin's Theorem
- Kirchoff's Law
- Power in DC circuits, Calculation/measuring of Power and Energy
- Relation between Work and Power, Current and Voltage
- Power dissipation, Magnetism
- Studies of resistors, capacitors and inductors in a series or parallel circuits
- Introduction to AC, AC Resistance, Power in AC circuits, AC Capacitance and RC circuits
- AC Inductance, RL circuits, RLC circuits
- Transformer theory and characteristics
- Diodes & LEDs characteristics & application
- Diode's Clipping/Clamping circuits
- Power rectifier and regulator circuits & application
- OP-AMPs application circuits
- Transistor's theory & fundamentals
- Diode's Limiting/Clipping/Clamping circuits



OSCILLATOR TRAINER
ABLELOGIC Model: OET-700

FEATURES:

- RC Feedback Oscillator Circuits,LC Feedback Oscillator Circuits
- Oscillators circuit using Op-Amps, Oscillators circuit using Transisitors
- The Wien Bridge Oscillator
- The Square Wave Relaxation Oscillator
- The Triangular Waveform Oscillator
- The Phase Shift Oscillator
- The Twin “T” Oscillator
- The Clap Oscillator
- The Hartley Oscillator
- The Crystal Controlled Oscillator
- The Armstrong Oscillator
- Oscillator with Trigger function
- Introduction to the 555 Timer IC
- Astable Operation of the 555 Timer
- The Phase Lock Loop (PLL) VCO operation
- Monostable Multivibrator Operation, Bi-stable Multivibrator Operation

ANALOGUE ELECTRONICS TRAINER
ABLELOGIC Model: ATS-8300

FEATURES:

A robust, user -friendly and self contained modular based basic analog electronics training system that teaches the fundamental, concept, theory, construction of basic analogue electronics circuits and its application. Covers studies on various types of diodes, transistors and power electronics devices.
Main base unit is equipped with various I/O devices on the main system board to facilitate construction of circuit with ease.
Includes a comprehensive set of modular experiment board modules that covers analog circuit theory practices and application. Each experiment modules comprises of clearly labeled component mimic diagrams and dedicated blocks to clearly show users the circuit connection and function of dedicated blocks. Built-in wiring points and test points to ease circuit connection and signal measurements.

OPERATIONAL AMPLIFIER TRAINER
ABLELOGIC Model: OAT-900

FEATURES:

An op-amp training kit that covers the following example topics:

- Introduction to Operational Amplifier (Op-Amp)
- Op-Amp theory, construction and usage
- Op-Amp Inverting and Non-inverting Inputs
- Op-Amp Input Modes (Differential, Single-Ended, Common Mode)
- Studying the Common Mode Rejection Ration
- Op-Amp Common Output Mode
- Investigating Op-Amp parameters and characteristics
- Basic Op-Amp circuits
- Inverting Amplifier, Non-Inverting Amplifier
- Voltage Follower, Summing Amplifier
- Subtractor, Comparator
- Voltage Divider, Integrator, Differentiator
- Cascaded Op-Amp Amplifier Circuit
- Using Op-Amps as Oscillators
- Trouble shooting Op-Amp circuits

CONSUMER ELECTRONICS TRAINING SYSTEMS

COLOR TV TRAINER
ABLELOGIC Model: ETV-800

FEATURES:

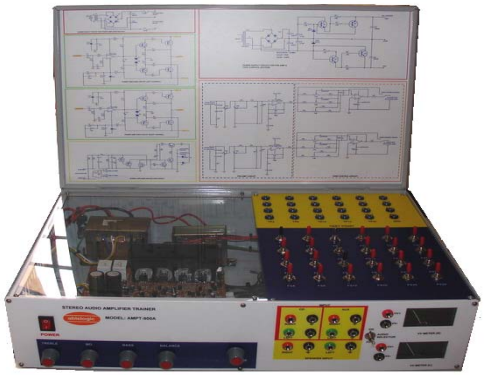
- Based on an actual color TV system, supporting the latest TV signal input format
- Clearly labeled mimic block diagrams for each functional block module
- A robust construction with the circuit board fitted onto a base unit with protective perspex cover for easy viewing & protection
- All important input and output interface are accessible via safety connectors & pin headers
- Built-in test points for signal measurements
- Built-in overload fuse protection
- Built-in faults simulation module for fault finding and troubleshooting
- Comprehensive experiment/student workbook
- This system includes all the related accessories such as remote control unit, receiving antenna, AV cables, mains cable to make it functional.

CD/DVD TRAINER
ABLELOGIC Model: DVD-500

FEATURES:

A robust, user -friendly and self contained training system that teaches the basic fundamental theory, basic operation and construction of a typical CD/DVD system. This trainer is most suitable and ideal for both teaching and learning of an optical system. Also ideal as a teaching tool for CD/DVD system maintenance & troubleshooting.

This educational trainer is designed to enable the studies of each of the main component block with ease. The system comes with clearly labeled component mimic diagrams and dedicated blocks to clearly show users the functional system blocks and its function of dedicated blocks. Built-in wiring points, connectors and test points for circuit signal measurements & probe.



AUDIO AMPLIFIER TRAINER
ABLELOGIC Model: AMPT-900A

FEATURES:

This is a robust, user -friendly and educational training system that teaches the basic fundamental theory, basic operation and construction of a stereo audio amplifier set. The AMPT-900A is most suitable used for both teaching and learning of a stereo audio amplifier system. Also ideal tool to demonstrate audio amplifier maintenance & troubleshooting.

This educational trainer is designed to enable the studies of each of the main component block with ease. The system comes with clearly labeled component mimic diagrams and dedicated blocks to clearly show users the functional system blocks and its function of dedicated blocks. Built-in wiring points, connectors and test points for circuit signal measurements & probe.

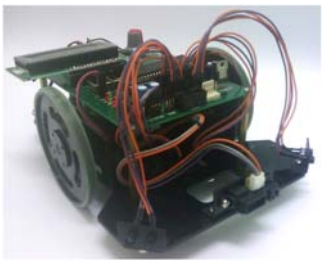
MECHATRONICS/ROBOTIC TRAINING SYSTEMS

ROBOTIC ARM TRAINER
ABLELOGIC Model: RBT-500A

FEATURES:

The **RBT-500A** is a portable, robust, and user -friendly robot arm kit that teaches the fundamental interfacing theory of basic “mechatronics” control fundamentals and its application.
This robotic arm kit is controlled by the renowned Microchip PIC microcontroller. A suitable and ideal for basic up to advance studies of electronics & mechanical control principals and hands on practical.

As a standard, the kit includes a controller board based on the PIC microcontroller device. Program can be written on a PC & downloaded to this controller board to view its results.
Also included is our own software interface that allows each of the relevant to be controlled via am user friendly interface.
Built-in wiring points, test points and interface to ease circuit connection and signal measurements. Sample programs and development software also included.



BASIC MICROCONTROLLER BASED ROBOTIC STARTER KIT
ABLELOGIC Model: PRK-200

FEATURES:

- Controller Board: Supports the Microchip PIC16F877A PIC device microcontroller
- Built-in 40-pin MCU device socket
- LED status indicators for IR sensors
- Chassis Construction: High density light weight perspex
- Programming Interface: Two ICSP interface
- Servo control IC using L293D
- Sensitivity control for IRs
- Expansion connector interface for extra servo motors
- All MCU ports interface available via standard socket connectors
- Wheel type: A pair of plastic wheel with rubber tyre
- Motion control: Via 2 units of RC Servo Motor
- Range sensor: GP2D120 range sensor module
- IR sensors for edge sensing and line tracking operation (Total: 3 pairs)
- 2 x16 LCD module with contrast control

PC-BASED TRAINING SYSTEMS

PC Troubleshooting & Maintenance Trainer
ABLELOGIC Model: PCTS-900A

FEATURES:

The PCTS-900A is a robust, reliable & self-contained advanced educational system which is used to teach the fundamental theory and hands-on practical on studies area such as:

- PC assembly & setup
- PC configuration & installation
- PC hardware identification
- PC hardware architecture, operation & function
- PC software installation & setup
- PC diagnostic testing (hardware & software)
- Fault simulation
- PC fault-finding & troubleshooting
- Built-in distinctive mimic block diagram consisting of functional modules. Every blocks & modules are clearly illustrated
- Built-in on board Test Points to enable system & components signal measurement
- Fault Simulator Module to allow simulation of various common faults on a PC system

The system allows the setup & configuration of all its system components which make up a complete set of multimedia PC of latest generation. All the components are of high quality & reliable parts produced using the latest technology.

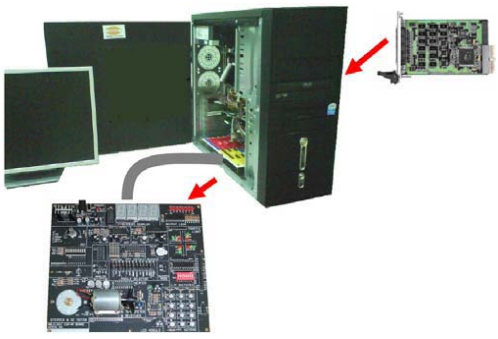
PC NETWORKING TRAINING SYSTEM
ABLELOGIC Model: PCNT-700

FEATURES:

A robust, reliable & self-contained advanced computer based networking trainer which is used to teach the fundamental theory and hands-on:

- PC networking technologies
- Networking topologies & properties
- Networking components identification
- Networking hardware architecture, operation & function
- Network cabling assembly and testing
- Networking software installation & setup
- Data sharing on a network system
- Testing & troubleshooting a LAN
- Faults simulation
- LAN maintenance

The system includes two computer set, one to operate as a server which is able to link to other client PC. (or other PC in the lab).



Computer Based I/O Interface Trainer
ABLELOGIC Model: CBTS-680

FEATURES:

A robust, reliable & self-contained advanced computer based educational training system which is used to teach the fundamental theory and hands-on practical on studies area such as:

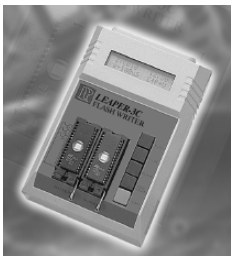
- Introduction to PC Based Interface Control
- Overview of Digital I/O signals & characteristics
- Digital I/O Control System
- Recognition of I/O devices
- Installation & setup
- Writing programs for I/O interfacing
- Simulation of various I/O devices in a control system
- Fault-finding & troubleshooting

The system includes an advanced PC Control I/O Card which is preinstalled into the host computer to function as a computer based interfacing system. The host computer works as a controller unit that monitors & control all the I/O devices connected to the system via a cable set. The system also
includes a multi experiment board module that allows the user to simulate various I/O interfacing experiment & to obtain a quick result of their written control programs.

DEVELOPMENT TOOLS & TEST MEASURING INSTRUMENTS

Universal Programmer
Leaper-48

Adaptors & Converters
for Programmers



EEPROM/Flash Programmer
(Standalone) Leaper-3C

EEPROM/Flash Programmer
Leaper-3D

Low Cost USB
PIC Programmer PIC-PRG2

8051 Programmer
Leaper-5E

PIC Programmer
P-START

ROM Emulator
WICE-M4

Standalone Logic Analyzer (with PC Link)
Model: LA-2025

PC-Based Logic Analyzer
Model: PLA-1016/PLA-2532

UV EPROM Eraser
Model: LER-121A/123A

Portable Digital IC Tester
Model: Leaper-1

Portable Linear IC Tester
Model: Leaper-2

Benchtype Digital IC Tester
Model: ICT-6C

Benchtype Linear IC Tester
Model: ICT-7A

Decade Boxes For Resistance,
Inductance, Capacitance
Model: DRB/DIB/DCB series

Intelligent Universal Programmer
Model: Labtool-48UXP

Digital Storage Oscilloscoper
Model: LEAPTRONIX DSO series

Semiconductor Checker & Curve Tracer
Model: SICT-300

Programmable DC Power Supply
Model: MPP series

Dual Channel Analog Oscilloscope
Model: MOS series

Sweep Function Generator
Model: MFG series

Regulated DC Power Supply

Function Generator
Model: LS series

Frequency Counter
Model: FC-5250C

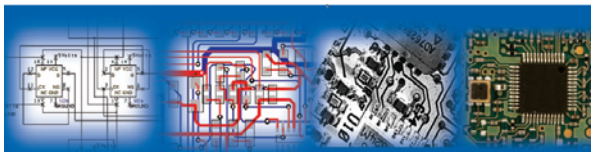
Audio Generator
Model: AG-2603AD

PAL Color Pattern Generator (CPG-1367A)
NTSC Color Pattern Generator (CPG-1366A)

RF Signal Generator
Model: SG-4160B

CIRCUIT & PCB DESIGN SOFTWARE

Easy-PC for Windows



Schematic Capture, PCB Layout, Libraries,Autorouting

Easy-PC offers truly astounding price/performance in PCB design, a professional level layout product available at computer store prices! Easy-PC brings you features normally found in the world's most expensive PCB design systems. Just take a look at the full datasheet and you'll see what terrific value you get with Easy-PC! Easy-PC comes complete with schematic capture fully integrated with PCB layout, using a true connective database - not a net-list transfer as with some systems.

General Features:

- Fully integrated Schematic Capture and PCB Layout
- True 32-bit Windows application
- True connective data model
- High-resolution (1m square design area, 1/10th degree angular rotation, 10 micron resolution)
- Unlimited elements per design*
- Technology files for rapid design setup
- Multi-level Undo and Redo
- Comprehensive 350-page Users Guide
- Library editing tools including library creation Wizards
- Library databook auto-generates datasheets
- Preview bar with birds-eye view and component 'bin'
- Fast-find of components, nets and errors
- Selective and cyclic picking
- Fast switch of colour settings
- Unlimited custom colours
- TrueType font support
- Customisable toolbars, menus and shortcut keys
- Cut, Copy, Paste and Duplicate of all design data
- Bi-directional cross-probe selection
- Manual 'sketch' routing mode
- 'Align' items feature
- Groups
- Input and output to bitmap
- Export to Metafile
- Component Values editor
- User defined grids, optionally with different X and Y step
- User configurable bill of materials output
- Single-button-press plotting to Windows, Gerber, HP-GL, PDF and Excellon
- Step-and-repeat plotting
- DXF import and export
- Design Calculators
- Design Revision Analyser
- Shape editing panel
- Merge shapes
- Dotted and dashed line styles
- Auto-numbered sequential backup files

Schematic Features:

- Easy to use
- Bus definitions
- Multi-sheet design
- Colour by net
- Automatically update PCB with Schematic design changes
- Back annotation
- Reverse Engineer creates Schematic from PCB
- Design Rules Checking

PCB Layout Features:

- Integrated component Auto-place
- Choice of optional integrated Auto-routers : Easy-Router or Pro-Router
- Shape-based copper pour
- Full, split and partial power planes
- 3D visualisation of board
- Automatic track smoothing mode
- Automatic track mitring mode
- Star/Delta points
- Apply Layout Pattern
- Back annotate name changes to Schematic
- Automatic component rename
- Supports SMT, PTH and mixed technology, and components on both sides of board
- Unlimited layers and user-defined layer types
- Fast switch of layer visibility
- Net and via optimiser
- On-line and batch design rule checking
- Dimensioning
- ODB++ manufacturing output
- Gerber output
- Excellon NC Drill output
- Full Windows printer support
- Output to PDF without the need for a separate driver

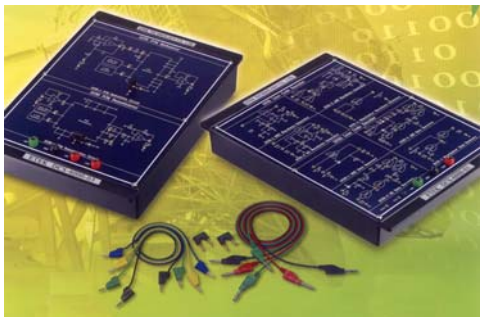
** Total pin count is limited only in pin-limited variants of the product*

Analogue Communication Trainers
Model: ACS-3000

Studies Coverage:

- Design and implementation of second order active filters and RF oscillators
- Design and implementation of AM and FM modulator and demodulator
- Design and implementation of DSB/SC and SSB modulator and demodulator
- Design and implementation of TDM and FDM multiplexer and demultiplexer
- Design and implementation of frequency converter and signal recovery circuits.

Digital Communication Trainers
Model: DCS-6000



Studies Coverage:

- Design and implementation of line code encoder and decoder
- Design and implementation of PWM and PCM modulators
- Design and implementation of DM and ADM modulators and demodulators
- Design and implementation of ASK, FSK and PSK modulators and demodulators

Digital & Analogue Communication Trainers
Model: DA-2000

Studies Coverage:

- Design and implementation of RF oscillators and filters
- Design and implementation of analog AM and FM modulation and demodulation
- Design and implementation of digital and analog converter
- Design and implementation of ASK and FSK modulation and demodulation
- Design and implementation of PSK and QPSK modulation and demodulation

High Level Digital Communication Trainers
Model: HCS-8000

Studies Coverage:

- Design and implementation of CVSD encoder and decoder
- Design and implementation of QPSK and QAM modulator and demodulator
- Design and implementation of DSSS, BCH and Convolutional codes encoder and decoder
- Design and implementation of GMSK modulator and demodulator

Fiber Optics Communication Trainers
Model: OFC-9000

Studies Coverage:

- User friendly and portable units, in modular form factor design
- Textbook includes the theoretical and practical details
- Textbook includes the expected results for reference
- Problem discussion attached together with answers for instructor
- Only need oscilloscope and spectrum analyzer to obtain the measured results

RF Circuit Design Trainers
Model: LC-2001

Studies Coverage:

- Design and implementation of RF front end receiver module
- Design and implementation of RF front end transmitter module
- Design and implementation of voltage controlled oscillator and phase lock loop
- Design and implementation of IF demodulator and audio process circuit
- Design and implementation of wireless transceiver module

Microwave Active Circuit Design Trainers
Model: MSA-2003

Studies Coverage:

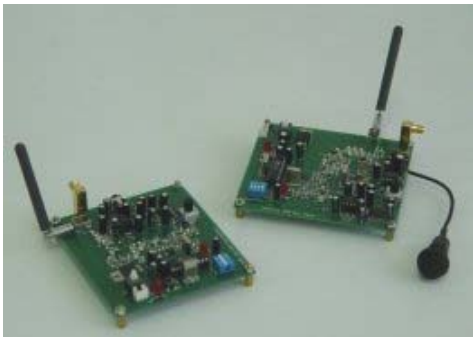
- Design and implementation of microwave front end receiver module
- Design and implementationof microwave front end transmitter module
- Design and implementation of voltage controlled oscillator and phase locked loop
- Design and implementation of IQ modulator and demodulator
- Design and implementation of digital wireless transceiver module

Microwave Passive Circuit Design Trainers
Model: MSP-2005

Studies Coverage:

- Design and implementation of switches and attenuators
- Design and implementation of Wilkinson power dividers, branch line couplers and Lange couplers
- Design and implementation of ring coupler, directional coupler and baluns
- Design and implementation of low-pass filter, bandstop filter and bandpass filter
- Design and implementation of PBG Filter and DGS type filter

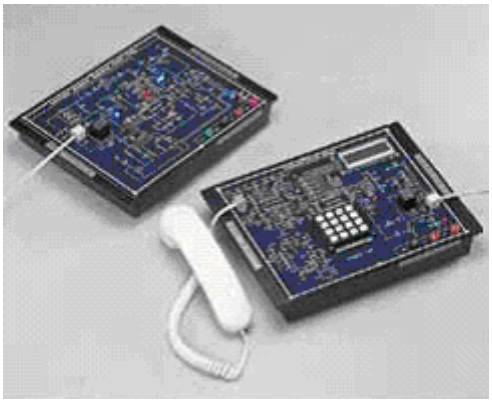
ISM 800MHz Transceiver/Receiver Training Kits
Model: ISM-800



Studies Coverage:

- Design and implementation of ISM 800 MHz RF Transmitter
- Design and implementation of ISM 800 MHz RF receiver

Basic Communication Electronics Trainers
Model: CE-2002



Studies Coverage:

- Design and implementation of filters and oscillators for wireless communication
- Design and implementation of transceiver for analog wireless communication
- Design and implementation of telephone system and controllable
- Understanding the theory and measurements of antenna and electric wave transmission

Wireless FM/FSK Transceiver/Receiver Training Kits
Model: FSK-300

Studies Coverage:

- Design and implementation of Wireless FM/FSK Transmitter
- Design and implementation of Wireless FM/FSK Receiver

Wireless AM/ASK Transceiver/Receiver Training Kits
Model: ASK-200

Studies Coverage:

- Design and implementation of Wireless AM/ASK Transmitter
- Design and implementation of Wireless AM/ASK Receiver

AM/DSB/SSB Transceiver/Receiver Training Kits
Model: AM-6011/12

System Features::

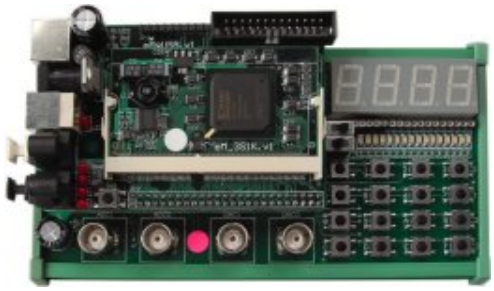
- Oscillator mode: Quartz crystal oscillator
- Carrier frequency range: 1 MHz, 4 MHz (SSB), 4.5 MHz (DSB)
- Ability to transmit audio signal
- Frequency response: 400 Hz ~ 8 kHz
- SSB/DSB Modulator / Demodulator
- Faults simulation using DIP switches

FM Stereo Transceiver/Receiver Training Kits
Model: AM-6021/22

System Features:

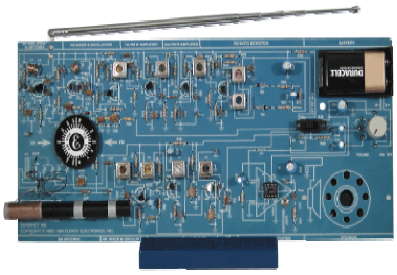
- Oscillator mode: Quartz crystal oscillator
- Carrier frequency range: 100MHz
- Ability to transmit audio signal
- Dynamic range: >70 dB
- Frequency response: 400 Hz ~ 8 kHz
- By using dip switches for the fault simulation

FPGA Digital Communication Trainers
Model: FPGA-DCT



Features:

- To study the basic & fundamental of using FPGA in a digital communication system
- To understand the basic theory of digital communication
- Design & implementation of digital modulator & demodulator concepts & application
- Design & implementation of various communication interface options
- Design & implementation of analog & digital signals
- Design & implementation of IIR & FIR filters
- Design & implementation of wireless, series and fiber optics interface
- Design & implementation of telephony & IR communication interface

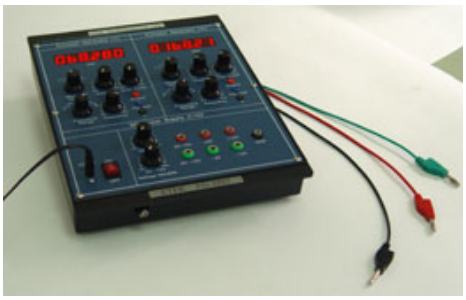


AM/FM Radio Training Kit
Model: AM/FM-108K

Features:

"Superheterodyne" receiver of standard AM (amplitude modulation) & FM (frequency modulated) broadcast frequencies. The unique design of this kit allows you to place the parts over its corresponding symbol in the schematic drawing on the surface of the printed circuit board. This technique maximizes the learning process while keeping the chances for an assembly error at a minimum. Supports faults simulation for fault finding & troubleshooting.

TEST INSTRUMENTS FOR TELECOMMUNICATION TRAINERS



Function Generator & DC Power Supply Unit
Model: FG-2002

Multiple Signal Generator
Model: MSG-2003

Triple Band Radio Signal Generator
Model: RG-2003

Radio Signal Generator
Model: RG-2300